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Duxbury Clipper

BATTELLE MEMORIAL INSTITUTE

Battelle: A Local Company with International Innovations

By MORAG MACLACHLAN

Shaded by trees and abutting Duxbury Bay, the eight buildings that make up Battelle Laboratories located on Washington Street seem picturesque and unassuming. But this company is making strides in marine science with discoveries in areas like environmental forensics and has a clientele that spans five continents.

While the Duxbury site focuses on ocean science, the Battelle company as a whole has made important discoveries that have led to the production of the Xerox machine, golf balls, and compact discs.

One of the most important discoveries in marine science took place at the Duxbury site. Environmental forensics was discovered, which is a technique of chemistry fingerprinting pollutants. This is helpful in the event of a chemical spill in which companies are arguing who is at fault. Chemistry fingerprinting can pinpoint the culprit and determine who is responsible for the environmental clean-up situation.

Battelle is helping the government monitor the effects of ballast water.

Battelle developed specifications for a portable instrument for the United States Coast Guard to verify voluntary exchange of ballast water in the battle to prevent the introduction of harmful marine species to US coastal waters.

"Ballast water is the water that oil tankers carry," said Sundstrom. "If a tanker stops at one port and only releases half of its oil supply, then in order to stay balanced it will fill up the empty space with ocean water."

Then the tanker will move on to another port and deliver the rest of its oil supply and release the supply of water. Now water from two different ports with different kinds of species is mixed. Battelle studies the effects of this mix on the environment.

These discoveries are being made at the Duxbury site, which is no stranger to marine research. The land that Battelle occupies today has been used for this purpose for decades.

In 1920, Dr. William Clapp founded William F. Clapp Laboratories in Duxbury. Clapp's company became associated with the Battelle Memorial Institute in 1965.

Today, the Battelle Lab in Duxbury monitors the water quality and is an educational resource to the town.

"Clapp labs evaluated products for the prevention of marine deterioration," said former director of the Clapp labs and retired Battelle research scientist. "Battelle labs encompass a wider scope, studying any kind of research benefiting mankind."

Battelle was founded after the death of Gordon Battelle. He left most of his estate to be used to create "a Battelle Memorial Institute for the encouragement of creative research and the making of discoveries and inventions."

In 1925, Battelle was started in Columbus, Ohio. In the fall

of 1964, president of Battelle Dr. B. D. Thomas assumed the responsibility for the management and operations of Clapp Laboratories in Duxbury. By then, Clapp laboratories were long noted as a world center for the study of marine biological attack on materials.

Over the decades, Battelle grew and facilities across the country and the globe were founded. Battelle has facilities in Washington State, New York, Tennessee, Colorado, and a lab in Geneva, Switzerland.

It is hard to believe that the 12-acre Duxbury facility has clients that span the globe. The facility can help an organization or company in six ways. Battelle specializes in human health and ecological risk assessment and management. According to Joan Sundstrom, the director of human resources and marketing services, this means that Battelle develops and applies methods, models, and experimental data for predicting ecological and human exposures and risks in multimedia settings.

For example, EPA, the Environmental Protection Authority, is using Battelle's data to develop effluent limitations and monitoring requirements for

permits in the offshore oil industry in the Gulf of Mexico.

Battelle is also doing risk assessment work for the Western Australia EPA which is concerned about risks to coral reefs from oil spills.

The second way Battelle can aid a company is through its

management of natural resources. Battelle develops solutions, technologies, and methods for ensuring the sustainability of natural resources.

Battelle is installing "Living Machine" technology to treat wastewater, stormwater, and agricultural runoff, as well as polishing effluent from sewage treatment plants for Italy's Ministero del Bilancio on the island of Sardinia.

Battelle offers assistance with environmental assessment and monitoring. According to Sundstrom, Battelle provides critical information for risk assessment and management through the development of methods and technologies for collecting and interpreting environmental data in marine, freshwater, atmospheric, and subsurface media.

Battelle has done environmental assessment and monitoring for countries surrounding the

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Battelle Labs on Washington Street is the home of many inventions in the area of ocean science.

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velop and manage a database system for all their studies.

Battelle remains busy on a local level as well.

Battelle is a non-profit organization that is 90 percent government sponsored and 10 percent corporate or industrial sponsored. Money from contracts supports the facility and its staff. The Coast Guard and EPA are two of Battelle's major clients.

The 110 Battelle workers all possess some sort of higher educational degree. Scientists make up 90 percent of the staff and the rest are the support staff.

Over the decades, all of the Battelle facilities have been responsible for major scientific discoveries from medical sci-

ence to food production to office technology.

The company assisted Chester Carlson in inventing xerography, Battelle metallurgists researched rust proof, antimagnetic alloy for watch springs and this proved valuable for a mechanical valve for the human heart, and Battelle helped to increase the production of sour cream and buttermilk from a process that took hours to minutes.

North Sea. Battelle has also assisted the island of Sardinia with coastal monitoring.

The expertise of Battelle's Duxbury center has even reached Asia where Battelle conducted a multi-year program in the Gulf of Thailand to assess the effects of offshore natural gas exploration and production.

Measurement technology and development analysis is another specialty of Battelle. The staff uses traditional and advanced measurement technologies to provide highly defensible analytical information for the resolution of complex environmental and institutional issues.

This technique is used during the monitoring of ballast water.

Fate, transport, and effects of contaminants are another area that Battelle covers. Battelle provides defensible assessments of the fate, transport, and effects of contaminants to provide information for resolution of complex environmental and institutional issues.

The Sea of Japan is an area that Battelle studied. Scientists modeled contaminant transport resulting from radioactive waste dumping and oil spills. Battelle assisted another Japanese client in siting a low-level nuclear waste disposal facility.

Statistical design and data analysis is the final field involving Battelle. Battelle applies full spectrum of statistical design and analysis methods, utilizing state-of-the-art computing facilities and software, to help solve environmental problems. An example of this is Battelle helping the EPA define childhood lead exposure hazard standards for risk assessments and clearance testing. The Exxon Valdez oil spill response team relied on Battelle to de-

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